

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
8 April 2004 (08.04.2004)

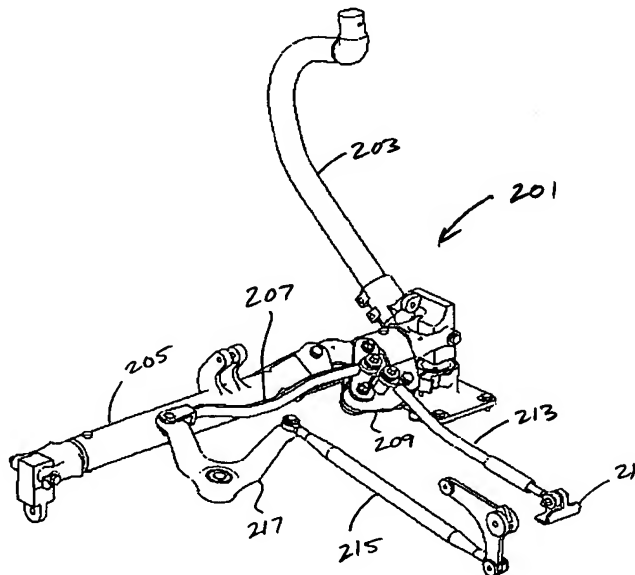
PCT

(10) International Publication Number
WO 2004/028901 A2

- (51) International Patent Classification⁷: **B64C** [US/US]; 1103 Findlay Drive, Arlington, TX 76012 (US).
HICKS, Duane [US/US]; 500 Roland, Keller, TX 76248 (US).
- (21) International Application Number: PCT/US2003/028974
- (22) International Filing Date: 19 September 2003 (19.09.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/413,228 24 September 2002 (24.09.2002) US
- (63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application:
US Not furnished (CIP)
Filed on Not furnished
- (71) Applicant (for all designated States except US): BELL HELICOPTER TEXTRON INC. [US/US]; P.O. Box 482, Fort Worth, TX 76101 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): FENNY, Carlos, A.
- (74) Agent: WALTON, James, E.; Law Offices of James E. Walton, P.L.L.C., Suite 107-328, 1169 N. Burleson Blvd., Burleson, TX 76028 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: ROTORCRAFT CONTROL SYSTEM WITH STEPPED MIXING LINKAGE



(57) Abstract: A control system for a rotorcraft is disclosed. The control system includes a stepped mixing linkage, such that a selected amount of right-left lateral cyclic output is generated for certain amounts of forward-aft cyclic input. The stepped mixing linkage includes two supporting links and a floating link pivotally coupled between the two supporting links. The ratio of the lengths of the two supporting links to the length of the floating link is small, thereby generating a selected lateral sinusoidal output, a selected rotation of the sinusoidal output, and a selected ramped output in response to each forward-aft pilot input command.



Published:

— *without international search report and to be republished
upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.